Metrologic®

METROLOGIC INSTRUMENTS, INC.

MS7600 Horizon® Series
Installation and User's Guide

LOCATIONS

CORPORATE HEADQUARTERS
NORTH AMERICA

USA, NEW JERSEY
Metrologic Instruments, Inc.
Tel: 1-800-ID-METRO Fax: 856-228-6673
Email: info@metrologic.com

SOUTH AMERICA, BRAZIL SÃO PAULO
Metrologic do Brasil Ltda.
Tel: 55-11-5182-8226 Fax: 55-11-5182-8315
Email: info@br.metrologic.com

SOUTH AMERICA, OUTSIDE BRAZIL SÃO PAULO
Metrologic South America
Tel: 55-11-5182-7273 Fax: 55-11-5182-7198
Email: info@sa.metrologic.com

ASIA, SINGAPORE
Metrologic Asia (Pte) Ltd
Tel: 65-6842-7155 Fax: 65-6842-7166
Email: info@sg.metrologic.com

CHINA, SUZHOU
Metro Technologies Co., Ltd.
Tel: 86-512-62572511 Fax: 86-512-62571517
Email: info@cn.metrologic.com

Metro Sales Office
Tel: 86-512-67622550 Fax: 86-512-67622560
Email: info@cn.metrologic.com

JAPAN, TOKYO
Metrologic Japan Co., Ltd.
Tel: 81-03-3839-8511 Fax: 81-03-3839-8519
Email: info@jp.metrologic.com

EUROPEAN, MIDDLE EAST & AFRICAN HEADQUARTERS

GERMANY, MUNICH
Metrologic Instruments GmbH
Tel: 49-89-89019-0 Fax: 49-89-89019-200
Email: info@europe.metrologic.com

GERMANY, MUNICH
Metrologic Instruments GmbH
Tel: 49-89-89019-0 Fax: 49-89-89019-200
Email: info@de.metrologic.com

ITALY, BOLOGNA
Metrologic Instruments Italia srl
Tel: +39 0 51 6511978 Fax: +39 0 51 6521337
Email: info@it.metrologic.com

FRANCE, PARIS
Metrologic Eria France SA
Tel: +33 (0) 1 48.63.78.78
Fax: +33 (0) 1 48.63.24.94
Email: info@fr.metrologic.com

SPAIN, MADRID
Metrologic Eria Ibérica, SL
Tel: +34 913 272 400 Fax: +34 913 273 829
Email: info@es.metrologic.com

Metrologic Europe Repair Center (MERC)
Metrologic Eria Ibérica, SL
Tel: +34 913 751 249 Fax: +34 913 270 437

UNITED KINGDOM, BASINGSTOKE
Metrologic Instruments UK Limited
Tel: +44 (0) 1256 365900
Fax: +44 (0) 1256 365955
Email: info@uk.metrologic.com

RUSSIA, MOSCOW
Metrologic Russia
Tel: +7 095 730 7424 Fax: +7 095 730 7425
Email: info@ru.metrologic.com

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INTRODUCTION

The MS7600 Horizon® series is Metrologic's next generation in-counter laser bar code scanner. This compact, hands-free scanner is designed with a dense 20-line omnidirectional scan pattern that helps provide fast, efficient throughput with a high first pass read rate.

The MS7600 is equipped with a multitude of standard features including:

- Durable die-cast construction
- Available with either a stainless steel (MS7625) or a high-impact plastic (MS7620) top plate
- Firmware updates via Flash ROM
- Field replaceable window
- EAS deactivation antenna is standard
- Supports commonly used interfaces including USB and Keyboard Wedge
- Custom Edit bar code data
- PowerLink, user replaceable cables
- RS232 auxiliary port for adding peripherals
- Programmable depth of field
- OPOS and JPOS system compatible
- Sunrise 2005 Compliant

SCANNER		INTERFACE
High Impact Plastic Top	MS7620-**13**	RS232, IBM 46xx, OCIA, Aux
	MS7620-**37**	RS232, Light Pen, Keyboard Wedge, Stand-Alone Keyboard, USB, Aux
Stainless Steel Top	MS7625-**13**	RS232, IBM 4680, OCIA
	MS7625-**37**	RS232, Light Pen, Keyboard Wedge, Stand-Alone Keyboard, USB, Aux

SCANNER AND ACCESSORIES

BASIC KIT	
Part #	**Description**
MS7600	Horizon Series Scanner
00-02407	MetroSelect® Programming Guide
00-02870	MS7600 Horizon Series Installation and User's Guide
52-52511A	24" EAS cable

Guides also available for download at www.metrologic.com.

OPTIONAL ACCESSORIES	
Part #	**Description**
46-46640	Point of Sale (POS) USB Plug
54-54xxx*	Straight PowerLink Cable with built in power jack. 2.1 m (7') cord with short strain relief
xxx specifies connection to the host.* *Contact a customer service representative for additional information.*	
54-54002	Keyboard Wedge PowerLink Cable with Adapter Cable
MVC**	Metrologic Voltage Converter Cable, +12VDC to +5.2VDC or -12VDC to +5.2VDC
** *Contact a Metrologic Customer Service representative for additional information on Metrologic's MVC cable series and the host connections available.*	
54-54020	Stand Alone Keyboard Wedge PowerLink Cable
54-54667	RS232 AUX PowerLink Cable

Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor or call Metrologic's Customer Service Department at 1-800-ID-METRO or 1-800-436-3876.

OPTIONAL ACCESSORIES	
Part #	**Description**
AC to DC Power Transformer - Regulated 5.2V@ 1A output	
46-46759	120V United States
46-46616	220V – 240V Continental European
46-46615	220V – 240V United Kingdom
46-46984	220V – 240V China
46-46985	220V – 240V Australia
46-46641	Stainless Steel Trim Ring

REPLACEMENT PARTS	
Part #	**Description**
⚠ Caution	Window types (Sapphire, Everscan, and Standard) are <u>not</u> interchangeable due to laser safety and/or scanner performance differences. To change window type, the scanner must be returned to the manufacturer for additional configuration.
46-46602	Stainless Steel Top with *Sapphire* Window
46-46603	Stainless Steel Top with *Everscan* Window
46-46604	Stainless Steel Top with *Standard* Window
46-46605	High Impact Plastic Top with *Sapphire* Window
46-46606	High Impact Plastic Top with *Everscan* Window
46-46607	High Impact Plastic Top with *Standard* Window
46-46640	Point of Sale (POS) USB Plug

Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor or call Metrologic's Customer Service Department at 1-800-ID-METRO or 1-800-436-3876.

BEFORE INSTALLING YOUR MS7600

When mounting the MS7600 or replacing the Top Plate:

DO NOT Turn
the unit upside down.

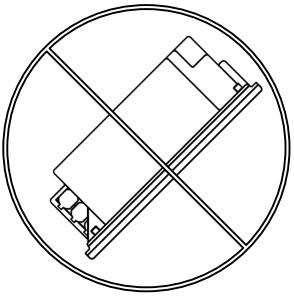


Figure 1

DO NOT Press
on the window.

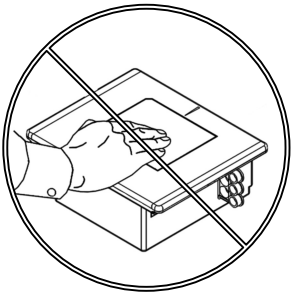


Figure 2

Lift the Top plate straight up to remove.

There is no hardware required to remove or replace the top cover.

⚠ *See caution on page 3.*

There are two installation tabs under the top cover that can be used to place the unit into the counter top mounting hole.

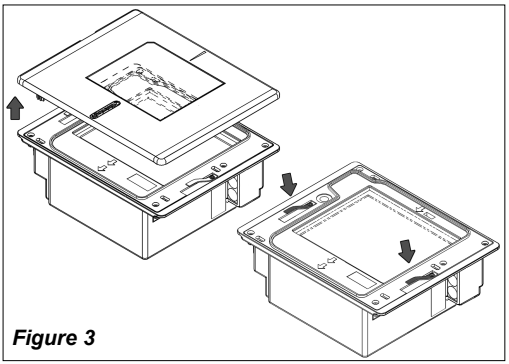


Figure 3

DO NOT PRESS
on the window in the replacement Top plate.

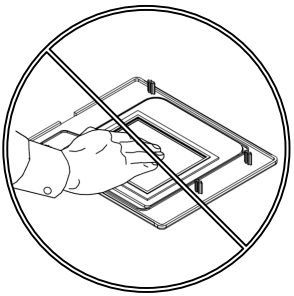


Figure 4

MOUNTING THE MS7600 SERIES

There are three options for mounting your MS7600. *Option "A"* uses a shelf to support the unit. *Option B* lets the unit hang free in the counter top. *Option C* lets the unit hang free in the counter top with the use of a stainless steel trim ring for support. The trim ring (MLPN 46-46641) is an optional purchase. Contact a Metrologic customer service representative for details at 1-800-ID-METRO.

Before starting to mount the MS7600, determine the direction of package flow for your application. The unit *must* be mounted in the countertop in the small arrowhead on the top of the unit pointing in same direction as the package flow.

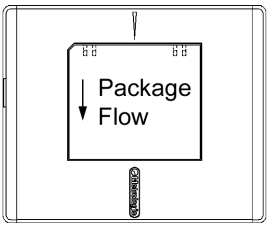


Figure 5: Package Flow

OPTION A: Shelf Support

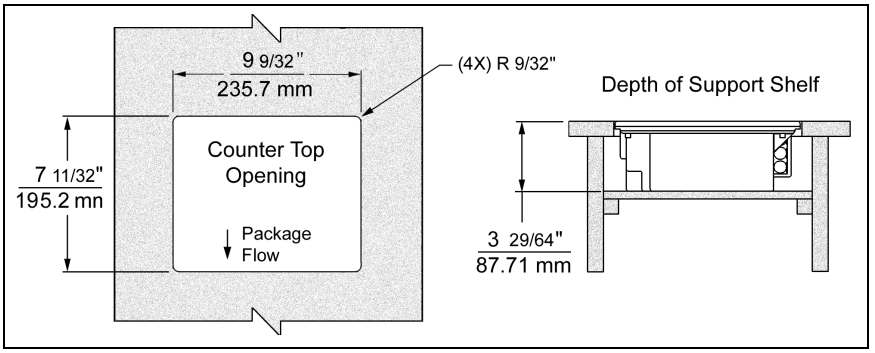


***Figure 6: Specifications for** shelf support.*

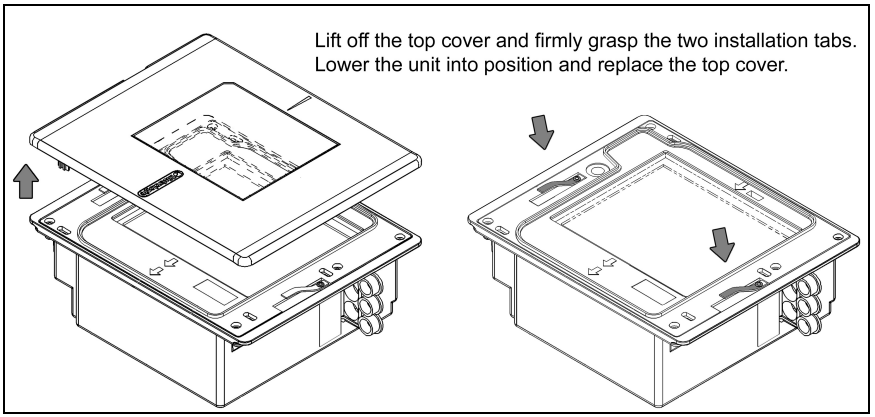


***Figure 7:** Installation Tabs*

OPTION B: Free Hanging Support

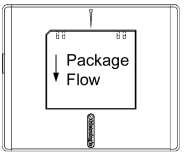


Figure 8: *Package Flow (right)*

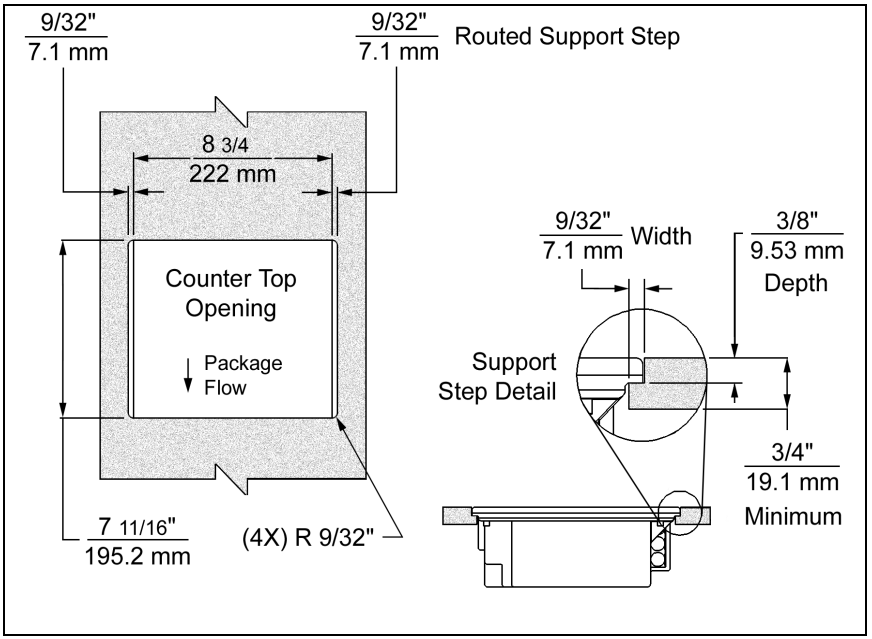


Figure 9: *Specifications for free hanging support.*

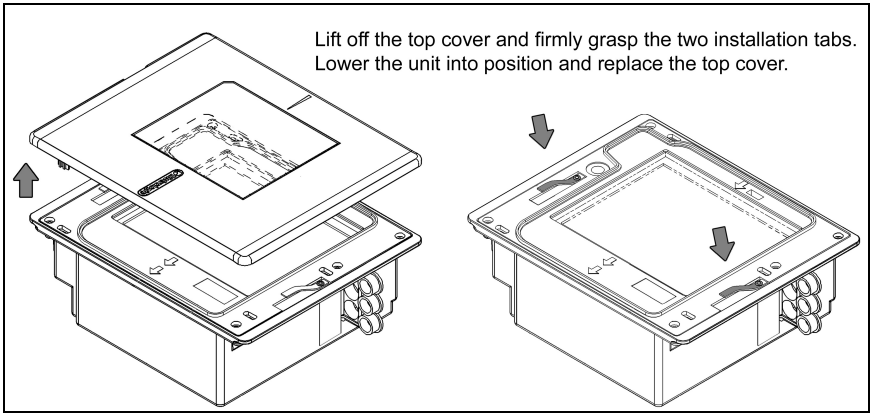


Figure 10: *Installation Tabs*

OPTION C: Trim Ring (MLPN 46-46641, Additional Purchase)

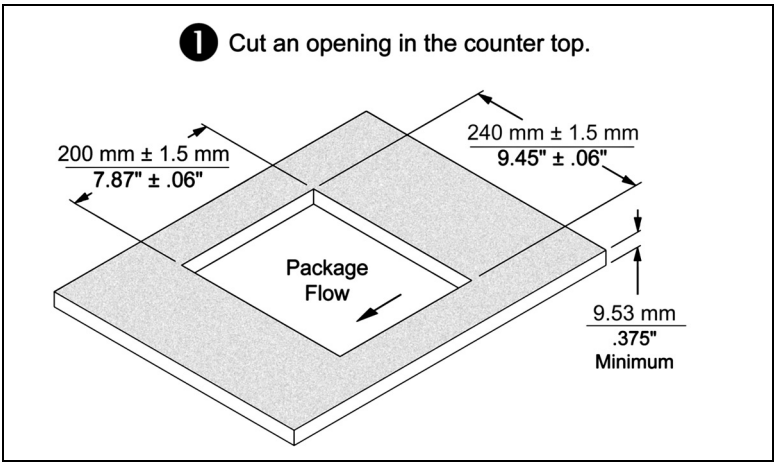


Figure 11: *Counter Top Opening for Trim Ring (MLPN 46-46641)*

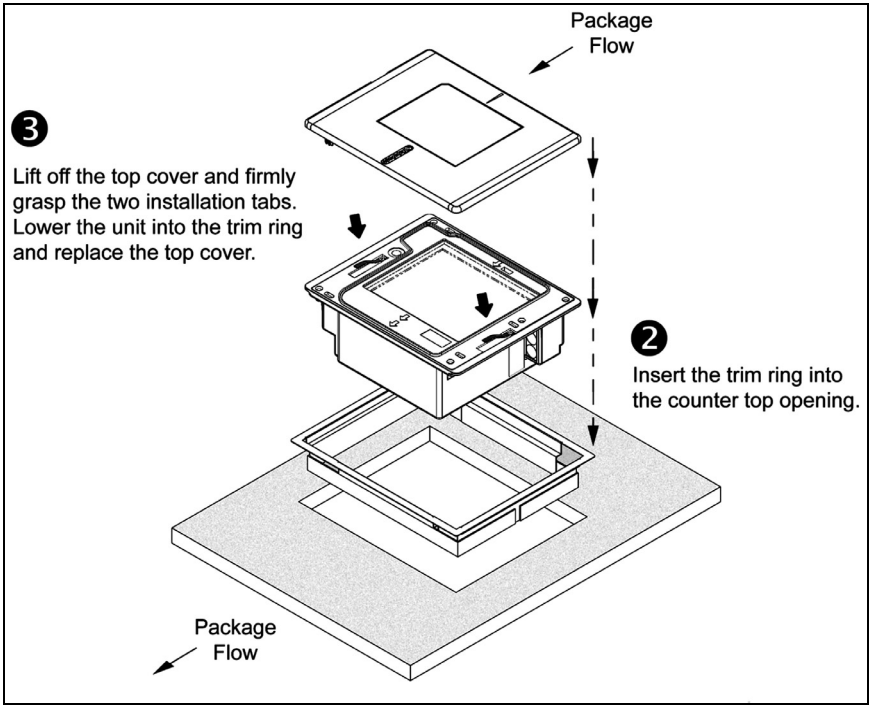

Package
Flow
3
Lift off the top cover and firmly grasp the two installation tabs. Lower the unit into the trim ring and replace the top cover.
2
Insert the trim ring into the counter top opening.
Package
Flow

Figure 12: *Trim Ring (MLPN 46-46641) Installation*

INSTALLATION FOR KEYBOARD WEDGE INTERFACE

1. Turn off the host system.
2. Disconnect the keyboard from the host.
3. Connect the PowerLink cable to the 2nd jack from the top of the MS7600.
4. Connect the "Y" end of the PowerLink cable to the keyboard and the keyboard port on the host. If necessary use the male/female adapter cable supplied with the scanner for proper connections.

STOP Before continuing verify that the PowerLink cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

5. Connect the external power supply to the power jack on the PowerLink cable.
6. Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet.
7. Connect AC power to the transformer. The outlet should be near the equipment and easily accessible.
8. Scan the *Load Keyboard Wedge Defaults* bar code to configure the MS7600 for Keyboard Wedge communication.
9. Turn on the host system.

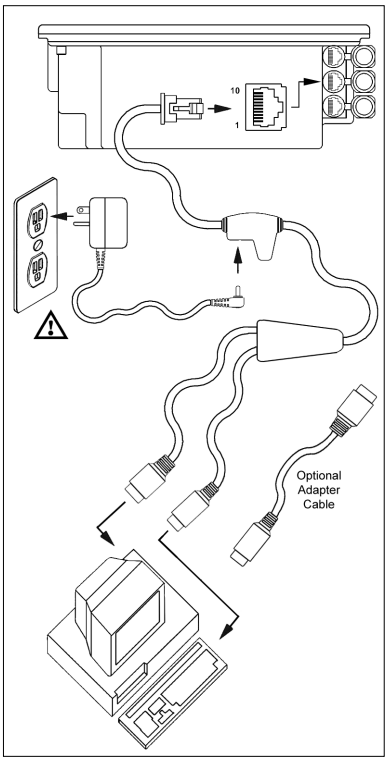


Figure 14: *Keyboard Wedge Interfaces*

Load Keyboard
Wedge Defaults

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 60950-00/UL 60950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

INSTALLATION FOR STAND-ALONE KEYBOARD INTERFACE

1. Turn off the host system.
2. Disconnect the keyboard from the host.
3. Connect the PowerLink cable to the 2nd jack from the top of the MS7600.
4. Connect the other end of the PowerLink cable to the keyboard port on the host.

STOP Before continuing verify that the PowerLink cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

5. Connect the external power supply to the power jack on the PowerLink cable.
6. Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet.
7. Connect AC power to the transformer. The outlet should be near the equipment and easily accessible.
8. Scan the *Load Keyboard Wedge Defaults* bar code then the *Enable Stand Alone Keyboard* bar code to configure the MS7600 for Stand-Alone Keyboard communication.

   Note: When scanning the bar codes, cover the code not being scanned to ensure the codes are read in the proper sequence.

9. Turn on the host system.

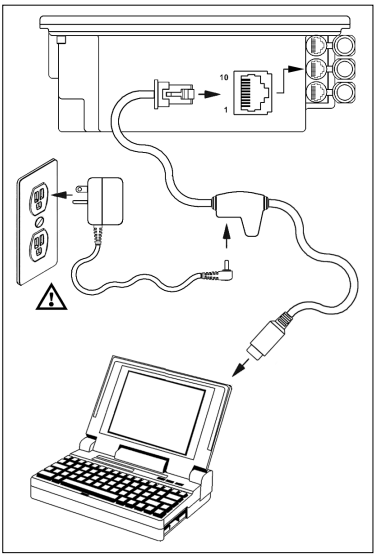


Figure 15: *Stand-Alone Keyboard Interface*

Load Keyboard Wedge Defaults

Scan 1St

Enable Stand-Alone Keyboard

Scan 2nd

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 60950-00/UL 60950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

1. Turn off the host system.

2. Determine if your application requires **USB Keyboard** communication protocols or **USB Point of Sale** communication protocols.

3. If you require ***USB Keyboard*** communication protocols, **skip** to step 4.

   If you require **USB Point of Sale** communication protocols:

   - Remove the MS7600 top cover.
   - Insert the POS plug (MLPN 46-46640) into the slot indicated in Figure 16.
   - Replace the top cover.

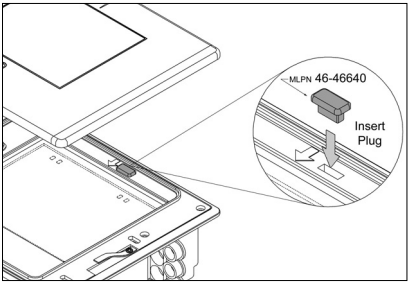


Figure 16: *POS Plug Installation*

4. Connect the PowerLink USB cable to the 2nd jack down from the top of the MS7600.

5. Connect the other end of the USB cable to the host.

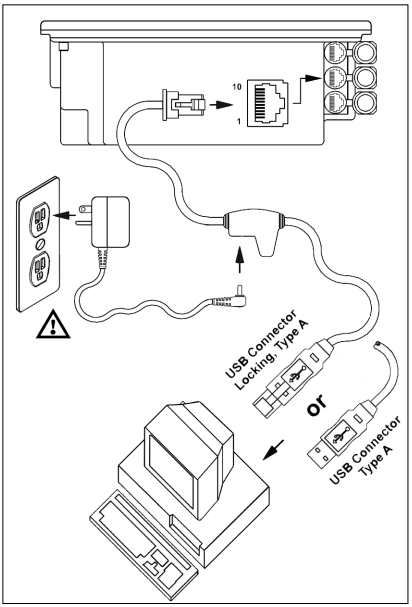


Figure 17: *USB, Interface*

STOP Before continuing verify that the USB PowerLink cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

Continued on next page.

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 60950-00/UL 60950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

Manufacturers Note:

Plugging the scanner into the USB port of the PC does not guarantee that scanned information will appear at the PC. A software driver and correct configuration setting may also be required for proper communication to occur.

6. Scan the *Enable USB Defaults* bar code to configure the MS7600 for USB communication.

Enable USB Defaults

7. Turn on the host system.

1. Turn off the host system.
2. Connect the PowerLink cable into the 1st jack down from the top of the MS7600.
3. Connect the other end of the PowerLink cable to the host.

STOP Before continuing verify that the PowerLink cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

4. Connect the external power supply to the power jack on the Power Link Cable.
5. Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet.
6. Connect AC power to the transformer. The outlet should be near the equipment and easily accessible.
7. Scan the appropriate bar codes on page 14 to configure the MS7600 for RS-232 or Light Pen communication.
8. Turn on the host system.

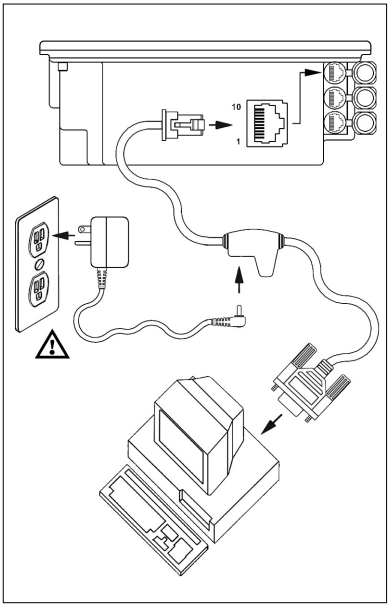


Figure 18: *RS232 or Light Pen Interface*

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 60950-00/UL 60950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

Step 7, page 12 continued.

For RS232 Communication:

Recall Defaults

Scan 1st

Enable RS-232

Scan 2nd

For Light Pen Communication:

Recall Defaults

Scan 1st

Enable Light Pen/Wand

Scan 2nd

1. Turn off the host system.

2. Connect the MVC cable to the 1st jack down from the top of the MS7600.

3. Connect the other end of the MVC cable to the host.

STOP Before continuing verify that the MVC cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

Manufacturers Note:

Plugging the scanner into the serial port of the PC does not guarantee that scanned information will appear at the PC. A software driver and correct configuration setting are also required for proper communication to occur.

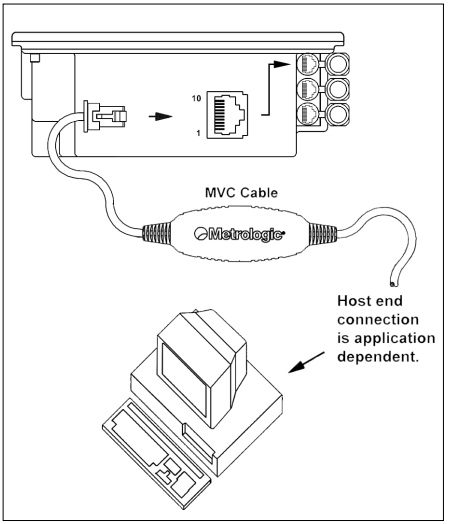


Figure 19: *RS232/IBM, Interface*

4. Turn on the host system.

5. Scan the *Load 46xx IBM Defaults* bar code to configure the MS7600 for IBM 46xx communication.

Load 46xx IBM Defaults

3 9 9 9 9 9 5

For additional communication options for IBM interfaces refer to the MetroSelect Programming Guide (MLPN 00-02407).

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 60950-00/UL 60950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

1. Turn off the host system.

2. Connect the MVC cable to the 2nd jack down from the top of the MS7600.

3. Connect the other end of the MVC cable to the host.

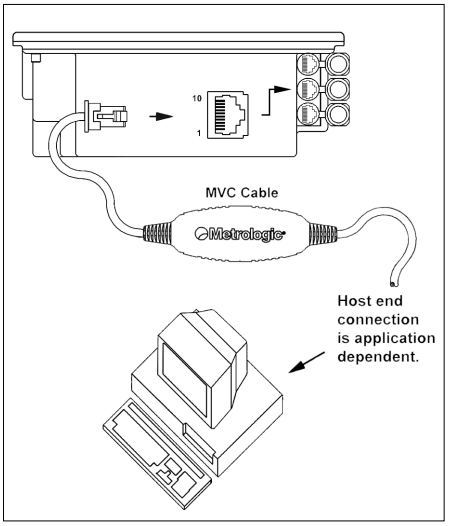


Figure 13: *OCIA, Interface*

STOP Before continuing verify that the MVC cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

Manufacturers Note:

Plugging the scanner into the serial port of the PC does not guarantee that scanned information will appear at the PC. A software driver and correct configuration setting are also required for proper communication to occur.

4. Turn on the host system.

5. Scan the *Load OCIA Defaults* bar code to configure the MS7600 for OCIA communication.

Load OCIA Defaults

For additional communication options for OCIA interfaces refer to the MetroSelect Programming Guide (MLPN 00-02407).

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 60950-00/UL 60950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

INSTALLATION OF A SECONDARY SCANNER

1. Turn off the host system.

2. Connect the **round** end of the PowerLink RS232 AUX cable [MLPN 54-54667A] to the RS232 jack of the **secondary** scanner (*see figure 20*).

3. Connect the other end of the PowerLink RS232 AUX cable into the **3rd** jack down from the top of the MS7600.

   The following Metrologic scanners can be used in the "Aux" input of the MS7600: the MS9520, MS9540, MS7220, MS7120, MS6720, MS6220, MS6520, MS5145 or another MS7600.

4. Connect the MS7600/Host PowerLink* cable to the appropriate interface jack on the back of the MS7600.

5. Connect the other end of the MS7600/Host PowerLink cable to the host.

6. Connect the external power supplies for the secondary scanner and the MS7600 to the power jacks on the two PowerLink cables.

STOP Before continuing verify that the PowerLink cables are connected to the appropriate interface jacks on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

7. Insert the attached rubber plug into the remaining jack *not* being used on the MS7600.

8. Check the AC input requirements of both power supplies to make sure the voltage matches the AC outlets.

9. Connect AC power to the transformers. The outlets should be near the equipment and easily accessible.

10. Configure the MS7600 for the appropriate interface configuration settings*.

Continued on page 17.

* The MS7600/host cable connection is interface dependent. Refer to the installation steps provided for the type of interface *(RS232, IBM 46xx, etc.)* required for your application.

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 60950-00/UL 60950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

11. Scan the following bar code to configure the auxiliary port on the MS7600 to accept a Metrologic scanner as the secondary scanner.

The following bar codes **do not apply** when using an MS6720 as a secondary scanner. Contact a Metrologic representative for additional information on the MS6720. If the secondary scanner is not a Metrologic scanner refer to Section O of the MetroSelect Configuration Guide.

Enable Aux Port

The auxiliary input port's data format must match the main output format of the secondary scanner.

12. Scan the following bar codes, in order, to configure the secondary scanner to match the auxiliary port's data format.

1st
Enable AUX Output

2nd
Secondary Scanner Data Format

3rd
Enable Comm Timeouts

4th (Optional)
Turn OFF Secondary Scanner's Beeper

13. Turn on the host system.

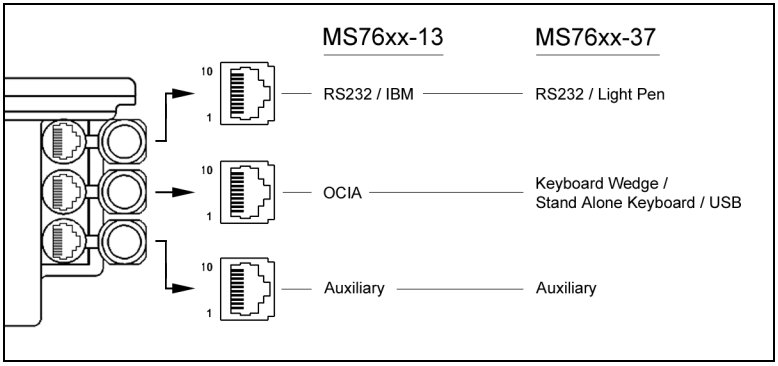
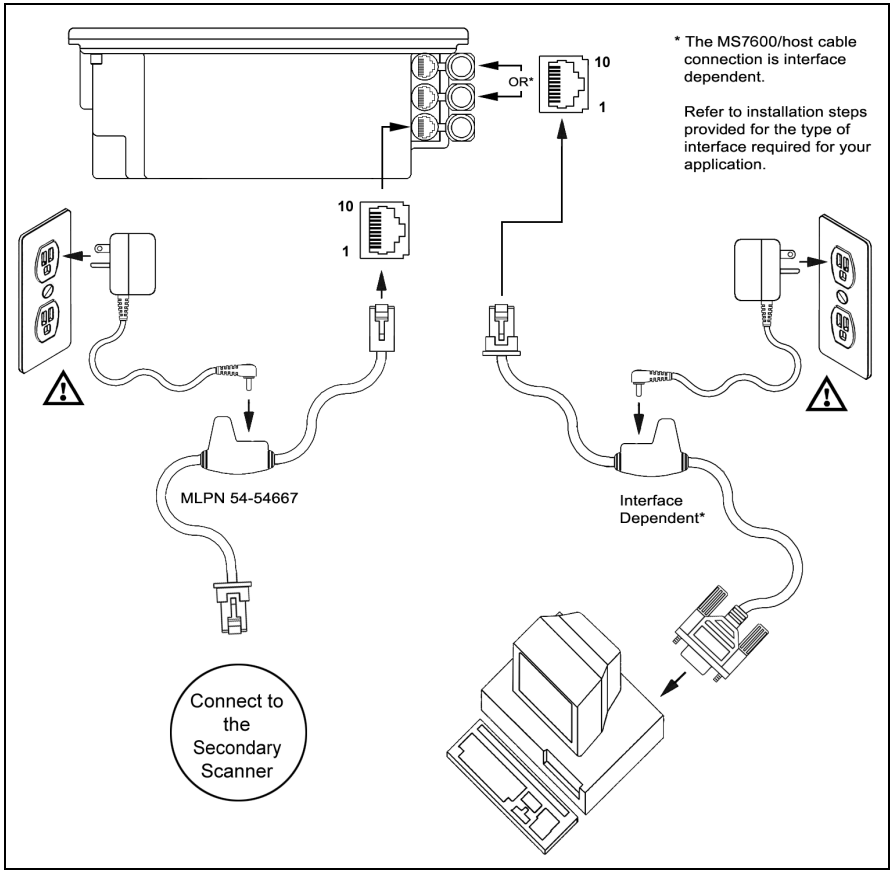


Figure 20: *Connector Orientation (Top)*
Secondary Scanner Setup (Bottom)


OR*
10
1
* The MS7600/host cable connection is interface dependent.
Refer to installation steps provided for the type of interface required for your application.
MLPN 54-54667
Interface Dependent*
Connect to the Secondary Scanner

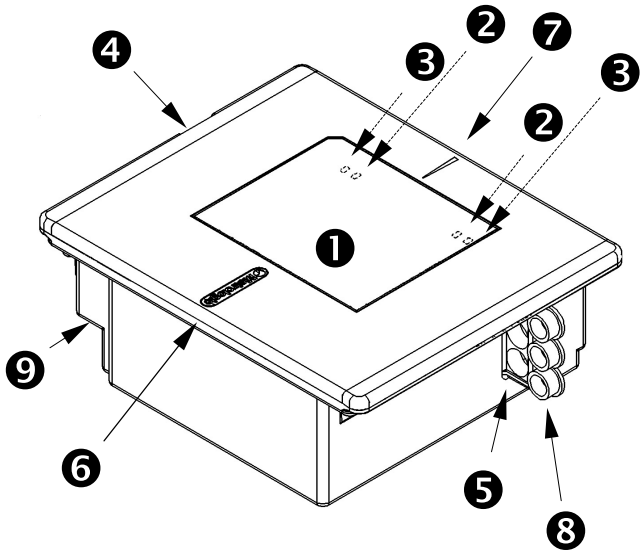


Figure 21: *Scanner Parts*

1. Output Window (Laser Aperture)
2. Amber LED (Located Under Window)
3. Red LED (Located Under Window)
4. Speaker
5. Cable Connection Area
6. Stainless Steel Top (MS7625 units only)
7. Package Flow Indicator Arrow Head
8. Rubber Connector Plug
9. EAS Deactivation Antenna Connector

MAINTENANCE

Smudges and dirt can interfere with the proper scanning of a bar code. Therefore, the output window will need occasional cleaning.

For the MS7600 glass window:

1. Spray glass cleaner onto lint free, non-abrasive cleaning cloth.
2. Gently wipe the scanner window.

For the MS7600 red window:

1. Use mild soap and water with lint free, non-abrasive cleaning cloth.
2. Gently wipe the scanner window.

EAS DEACTIVATION ANTENNA

SW1 and SW2 are the switch banks inside the Checkpoint Device that set the deactivation range. Metrologic recommends end users program the MS7600 to the Fixed Low-Density depth of field, so that the unit does not scan out beyond the deactivation range.

Unit #	CheckPoint Recommended Switch Bank Settings	MS7600 Depth of Field Settings
MS7620	1, 2, 3, 4, 5, on SW1 & SW2	Fixed Low Density*
MS7625	1, 2, 3, 4, 5, on SW1 & SW2	Fixed Low Density*
**Note: Minimum element width changes to 6.8 mil when in this mode.*		

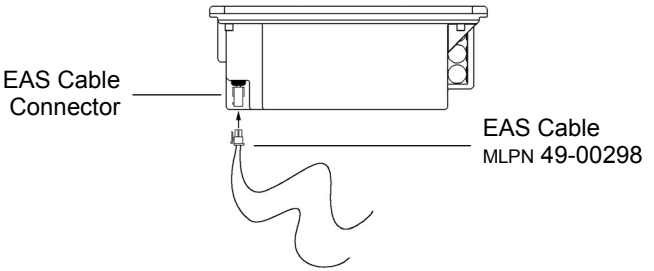


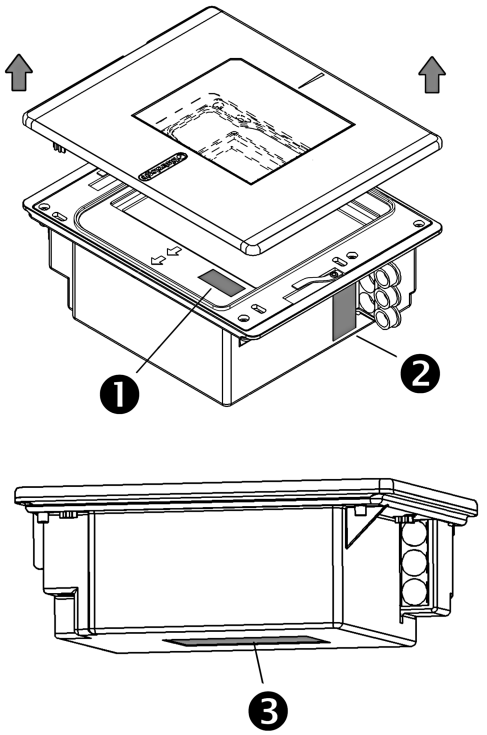
Figure 22: *EAS Cable and Connector*

Contact Checkpoint Systems directly for additional EAS support.

SCANNER LABELS

Each scanner has a label on the bottom of the unit. The label contains information such as the model number, date of manufacture, serial number, and caution information. An additional caution label is located under the top plate. The following are examples of these labels.

Figure 23: *Label Locations*



1

CAUTION-CLASS 2 LASER LIGHT WHEN OPEN. DO NOT STARE INTO BEAM. ATTENTION - CLASSE 2 RAYONNEMENT LASER EN CAS D'OUVERTURE. NE PAS REGARDER DANS LE FAISCEAU

2

RS232 IBM	OCIA	AUX	762x-13
RS232 LIGHT PEN	KB WEDGE USB	AUX	762x-37

See serial number label for applicable interfaces.

3

Metrologic Instruments, Inc.
Blackwood, New Jersey, U.S.A.
Manufactured: January 2002 (P) 13
Blackwood, NJ, U.S.A.
Horizon™ Barcode Scanner 5V ⎓
Model: MS7625 IBM/OCIA/RS232
0000000000
SAMPLE
This Product is covered by one or more patents. See User's Guide for complete patent list.

CE c UL us LISTED 94J8 I.T.E.

IEC 60825-1:1993+A2:2001

CLASS 1 LASER PRODUCT
APPAREIL A LASER DE CLASSE 1

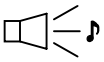
LASER KLASSE 1 PRODUKT

CAUTION - CLASS 2 LASER LIGHT WHEN OPEN. DO NOT STARE INTO BEAM. ATTENTION - CLASSE 2 RAYONNEMENT LASER EN CAS D'OUVERTURE. NE PAS REGARDER DANS LE FAISCEAU. Contains no user serviceable components. Complies with 21 CFR 1040.10 and 1040.11 except deviations pursuant to Laser Notice No. 50 dated July 26, 2001.

Patents See Manual.

AUDIBLE INDICATORS

When the MS7600 scanner is in operation, it provides audible feedback. These sounds indicate the status of the scanner. Eight settings are available for the tone of the beep (normal, 6 alternate tones and no tone) plus three volume settings. To change the tone or volume, refer to the *Changing the Beeper Tone & Volume* section of this manual.



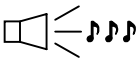
One Beep

When the scanner *first* receives power, the amber LED will turn on, the red LED will flash and the scanner will beep once. (The red LED will remain on for the duration of the beep.) The scanner is now ready to scan.

When the scanner *successfully* reads a bar code, the red LED will flash and the scanner will beep once (if programmed to do so). If the scanner does not beep once and the red light does not flash, then the bar code has *not* been successfully read.

Razzberry Tone

This is a failure indicator. Refer to failure modes page 24.

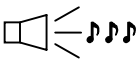


Three Beeps - During Operation

When placing the scanner in program mode, the red LED will flash while the scanner simultaneously beeps three times. The red and amber LEDs will continue to flash until the unit exits program mode. Upon exiting program mode, the scanner will beep three times and the red LED will stop flashing.

When configured, 3 beeps can also indicate a communications timeout during normal scanning mode.

When using one-code-programming, the scanner will beep three times (the current selected tone), followed by a short pause, a high tone and a low tone. This tells the user that the single configuration bar code has *successfully* configured the scanner.



Three Beeps - On Power Up

This is a failure indicator. Refer to failure modes page 24.

There is a red LED and amber LED on the front of the MS7600. When the scanner is on, the flashing or constant illumination of the LEDs indicates the status of the current scan and the scanner.

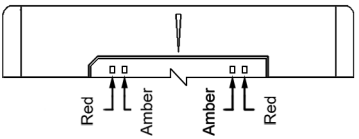


Figure 24: *LEDs*

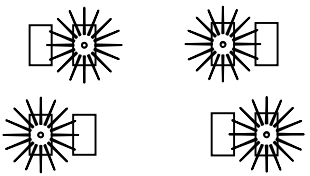
No Red or Amber LED
The LEDs will not be illuminated if the scanner is not receiving power from the host or transformer.

Steady Amber
When the laser is active, the amber LED is illuminated. The amber LED will remain illuminated until the laser is deactivated.

Steady Amber and Single Red Flash
When the scanner successfully reads a bar code, the red LED will flash and the scanner will beep once. If the red LED does not flash or the scanner does not beep once, then the bar code has not been successfully read.

Steady Amber and Steady Red
After a successful scan, the scanner transmits the data to the host device. Some communication modes require that the host inform the scanner when data is ready to be received. If the host is not ready to accept the information, the scanner's red LED will remain on until the data can be transmitted.

Flashing Amber then Flashing Red
This indicates the scanner is in program mode. A razzberry tone indicates that an invalid bar code has been scanned in this mode.
or
If the unit is in sleep mode, each LED will flash once every 15 seconds.



Steady Red, Amber off
This indicates the scanner may be waiting for communication from the host.

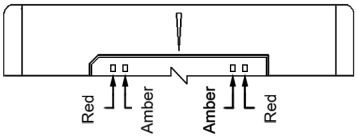
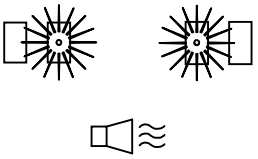


Figure 25: *LEDs*

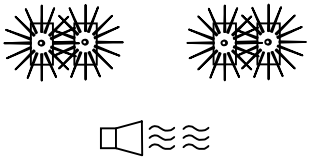
Flashing Amber and One Razzberry Tone

This indicates the scanner has experienced a laser subsystem failure. Return the unit for repair at an authorized service center.



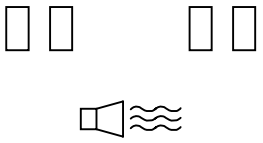
Flashing Red and Amber and Two Razzberry Tones

This indicates the scanner has experienced a motor failure. Return the unit for repair at an authorized service center.



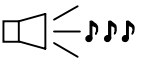
Continuous Razzberry Tone with both LEDs off

If, upon power up, the scanner emits a continuous razzberry tone, then the scanner has an electronic failure. Return the unit for repair at an authorized service center.



Three Beeps - on power up

If the scanner beeps 3 times on power up then, the nonvolatile memory that holds the scanner configuration has failed. Return the unit for repair at an authorized service center.



Changing the Beeper Tone

Beeper tones may be programmed directly or incrementally using the following bar code. The new tone will be heard followed by a short pause. Two more new tones will be heard signifying the new setting has been stored in memory. The silent (no beep) tone is also selectable.

Next Beep Tone

Changing the Beeper Volume

Volume levels may be programmed directly or incrementally using the following bar code. The new volume will be heard followed by a short pause. Two more tones will be heard signifying the new setting has been saved in memory. The silent (no volume) tone is also selectable.

Next Volume

These volume control and beeper tone bar codes can also be found under the Top plate of the scanner and in the MetroSelect Programming Guide.

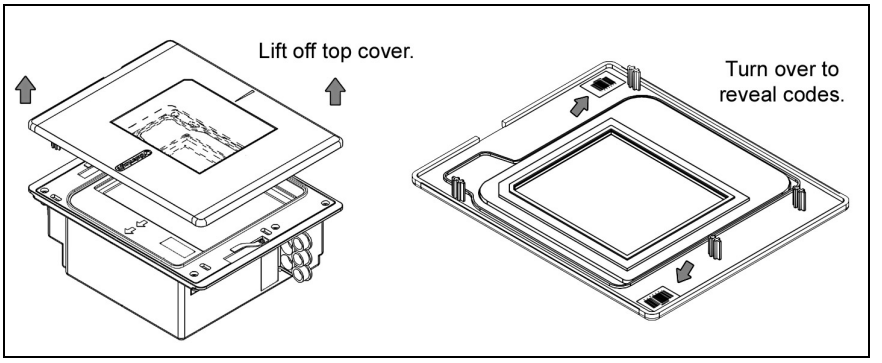


Figure 26: *Additional Beeper Tone and Volume Control Bar Codes.*

POWER SAVE MODES AND IR DETECTION

The MS7600 has five programmable power save modes. Refer to the *MetroSelect Programming Guide* for additional information on Power Save Modes.

1. **Blink Power Save Mode:**
   Blinks the laser OFF & ON after a programmed period of non-use.

   When the scanner recognizes a bar code it will exit the Blink mode.

2. **Laser Off Power Save Mode:**
   Turns the laser OFF after a programmed period of non-use. The motor continues to spin allowing for a faster "wake" up time.

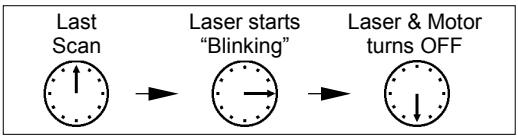
   Any movement detected by the IR will "wake" the scanner from the *Laser Off* power save mode (see figure 27).

3. **Laser & Motor Off Power Save Mode:**
   Turns the laser and motor OFF after a programmed period of non-use.

   Any movement detected by the IR will "wake" the scanner from the power save mode (see figure 27). This mode's "wake" time is slightly longer due to the motor's need to restart.

4. **Dual Action Power Save Mode #1:**
   "Blinks" the laser OFF & ON after a programmed period of non-use turns the laser and motor OFF at thirty-minute intervals.

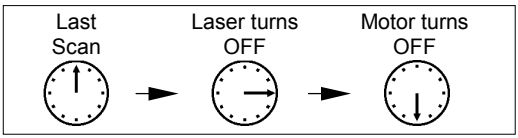
   Example:
   If the power save timeout is set to 15 minutes.



   Any movement detected by the IR will "wake" the scanner from the power save mode (see figure 27).

5. **Dual Action Power Save Mode #2 (Default):**
   Turns the laser OFF after a programmed period of non-use then turns the motor OFF after thirty-minute intervals.

   Example:
   If the power save timeout is set to 15 minutes.



   Any movement detected by the IR will "wake" the scanner from the power save mode (see figure 27).

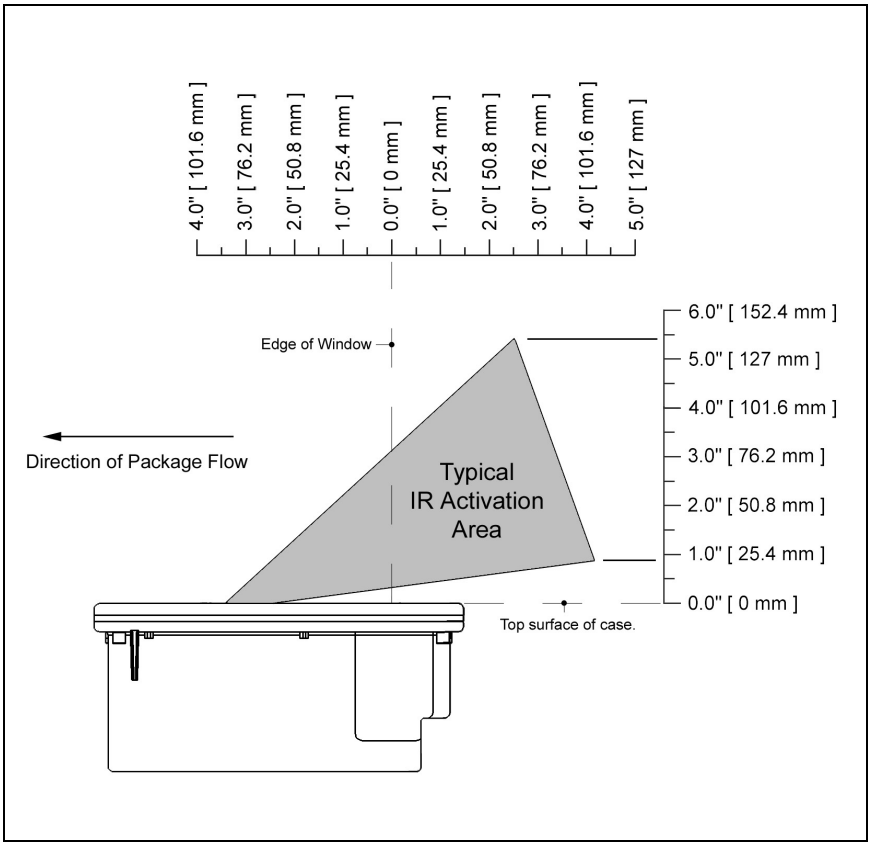

4.0" [101.6 mm]
3.0" [76.2 mm]
2.0" [50.8 mm]
1.0" [25.4 mm]
0.0" [0 mm]
1.0" [25.4 mm]
2.0" [50.8 mm]
3.0" [76.2 mm]
4.0" [101.6 mm]
5.0" [127 mm]
Edge of Window
6.0" [152.4 mm]
5.0" [127 mm]
4.0" [101.6 mm]
3.0" [76.2 mm]
2.0" [50.8 mm]
1.0" [25.4 mm]
0.0" [0 mm]
Direction of Package Flow
Typical
IR Activation
Area
Top surface of case.

Figure 27: *IR Activation Area Parallel to Package Flow*

Specifications are subject to change without notice.

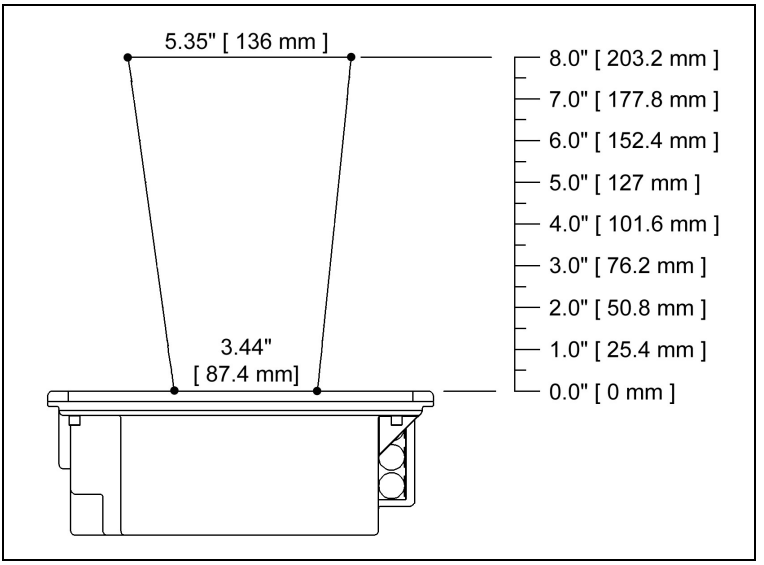


Figure 28: *Scan Volume in Plane Perpendicular to Flow*

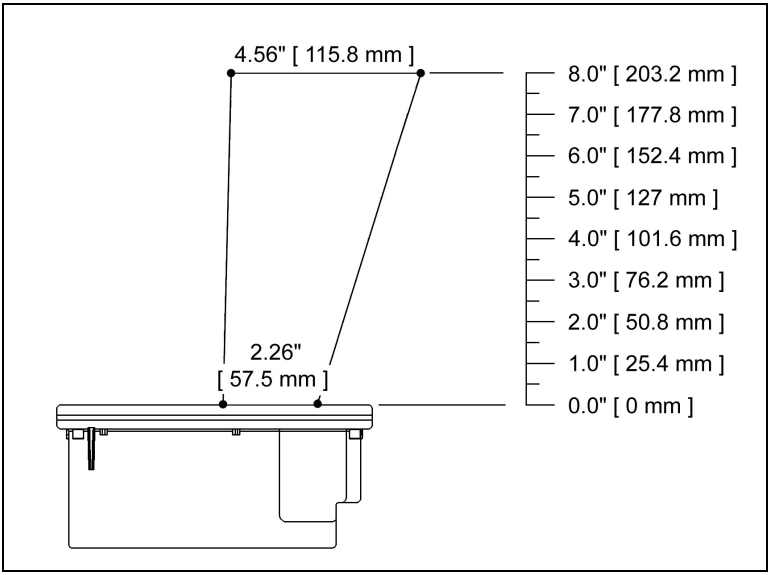


Figure 29: *Scan Volume in Plane Parallel to Flow*

Specifications subject to change without notice.

DEPTH OF FIELD BY MINIMUM BAR CODE ELEMENT WIDTH

(BASED ON 100% UPC BAR CODES)

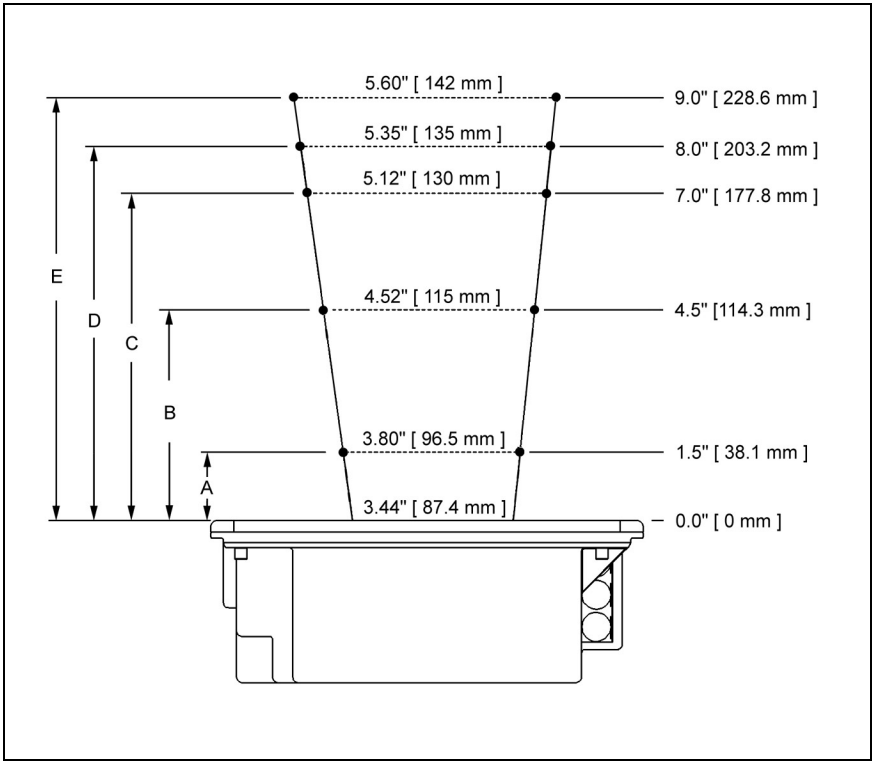


Figure 30: *Depth of Field Perpendicular to Flow*

	Minimum Bar Code Element Width				
	A	**B**	**C**	**D**	**E**
mm	.13	.19	.26	.33	.48
mils	5.2	7.5	10.4	13	19

Specifications subject to change without notice.

TROUBLESHOOTING GUIDE

The following guide is for reference purposes only. Contact a Metrologic representative at 1-800-ID-METRO or 1-800-436-3876 to preserve the limited warranty terms.

MS7600 SERIES TROUBLESHOOTING GUIDE		
SYMPTOMS	**POSSIBLE CAUSE(S)**	**SOLUTION**
All Interfaces		
No LEDs, beep or motor spin.	No power is being supplied to the scanner.	Check transformer, outlet and power strip. Make sure the cable is plugged into the scanner.
No LEDs, beep.	No power is being supplied to the scanner from host.	Some host systems cannot supply enough current to power MS7600 series scanner. Use the power supply included with the scanner.
3 beeps on power up.	Non-volatile RAM failure.	Contact a Metrologic Representative, if the unit will not hold the programmed configuration.
Continuous razz tone on power up.	RAM or ROM failure.	Contact a Metrologic Representative, if the unit will not function.
Razz tone and amber LED flash at power up.	VLD failure.	Contact a Metrologic Representative.
Razz tone and both LEDs flash at power up.	Scanner motor failure.	Contact a Metrologic Representative.
Multiple scans upon presentation of code.	Same symbol timeout set too short.	Adjust same symbol timeout for a longer time.
The unit powers up, but does not beep.	Beeper disabled No volume is selected No tone is selected.	Enable beeper Select volume Select tone.

SYMPTOMS	POSSIBLE CAUSE(S)	SOLUTION
The unit powers up, but does not scan and/or beep.	Scanning a particular symbology that is not enabled.	UPC/EAN, Code 39, interleaved 2 of 5, Code 93, Code 128 and Codabar are enabled by default. Verify that the type of bar code being read has been selected.
	The scanner has been programmed for a character length lock, or a minimum length and bar code being scanned does not satisfy the programmed criteria.	Verify that the bar code that is being scanned falls into the criteria. (Typical of Non-UPC/EAN codes. *The scanner defaults to a minimum of 4 character bar code.*)
The unit scans a bar code, but locks up after the first scan (red LED stays on).	The scanner is configured to support some form of host handshaking but is not receiving the signal.	If the scanner is setup to support ACK/NAK, RTS/CTS, XON/XOFF or D/E, verify that the host cable and host are supporting the handshaking properly.
The unit scans, but the data transmitted to the host is incorrect.	The scanner's data format does not match the host system requirements.	Verify that the scanner's data format matches that required by the host. Make sure that the scanner is connected to the proper host port.
Scanner beeps at some bar codes and NOT for others of the same bar code symbology.	The print quality of the bar code is suspect.	Check print mode. The type of printer could be the problem. Change print settings. For example change to econo mode or high speed.
	Also check character length lock.	
	The aspect ratio of the bar code is out of tolerance.	

SYMPTOMS	POSSIBLE CAUSE(S)	SOLUTION
Scanner beeps at some bar codes and NOT for others of the same bar code symbology.	The bar code may have been printed incorrectly.	Check if it is a check digit/character/or border problem.
	The scanner is not configured correctly for this type of bar code.	Check if check digits are set properly.
	The minimum symbol length setting does not work with the bar code.	Check if the correct minimum symbol length is set.
Keyboard Wedge Only		
The unit scans the bar code but there is no data	Configuration is not correct	Make sure the scanner is configured for the appropriate mode.
The unit scans but the data is not correct.	Configuration is not correct.	Make sure that the proper PC type AT, PS2 or XT is selected. Verify correct country code and data formatting are selected. Adjust intercharacter delay SYMPTOM.
The unit is transmitting each character.	Configuration is not correct.	Increase the interscan code delay setting. Adjust whether the F0 break is transmitted. It may be necessary to try this in both settings.
Alpha characters show as lower case.	Computer is in Caps Lock mode.	Enable Caps Lock detect setting of the scanner to detect whether the PC is operating in Caps Lock.

SYMPTOMS	POSSIBLE CAUSE(S)	SOLUTION
Everything works except for a couple of characters.	These characters may not be supported by that country's key look up table.	Try operating the scanner in Alt mode.
RS-232 Only		
The unit is transmitting each character.	Configuration is not correct.	Increase the interscan code delay setting. Adjust whether the F0 break is transmitted. It may be necessary to try this in both settings.
Alpha characters show as lower case.	Computer is in Caps Lock mode.	Enable Caps Lock detect setting of the scanner to detect whether the PC is operating in Caps Lock.
Everything works except for a couple of characters.	These characters may not be supported by that country's key look up table.	Try operating the scanner in Alt mode.
Power-up OK and scans OK but does not communicate properly to the host.	Com port at the host is not working or configured properly.	Check to make sure that the baud rate and parity of the scanner and the communication port match and the program is looking for "RS-232" data.
	Cable not connected to the proper com port.	
	Com port not operating properly.	
The host is receiving data but the data does not look correct.	The scanner and host may not be configured for the same interface.	Check that the scanner and the host are configured for the same interface.

SYMPTOMS	POSSIBLE CAUSE(S)	SOLUTION
Characters are being dropped.	Intercharacter delay needs to be added to the transmitted output.	Add some intercharacter delay to the transmitted output by using the MetroSelect Programming Guide (MLPN 00-02407).
Aux port operation with any interface		
Trouble with the Secondary Scanner.		Refer to the user guide provided with the secondary scanner.
Secondary Scanner powers up but data is not relayed to the host.	Cable [MLPN 54-54667] may not be connected to the proper port.	Ensure Secondary scanner is connected to the MS7600 com port marked "Aux" port.
	The "Aux" com port may not be operating properly.	* The MS7600 must be programmed to enable the "Aux" port.
		The auxiliary input port's data format must match the main output format of the secondary scanner.
* Use MetroSet®. For the Auxiliary interface, choose "HoloTrak Decode". All remaining parameters will be automatically chosen.		
USB Only		
The scanner Powers up ok, scans ok but does not communicate.	The USB Port is not operating correctly.	Check that the scanner is programmed for USB operation.
		Check that the host's USB port is enabled.
When configured as USB scanner razz tone & 3 LED flashes.	USB port is not operating correctly.	Unplug & plug USB cable at host end.
		Contact a Metrologic representative if error continues.

DESIGN SPECIFICATIONS

	MS7600 SERIES DESIGN SPECIFICATIONS
OPERATIONAL	
Light Source:	VLD 650 ± 10 nm
Laser Power:	1.1 mW maximum
Depth of Field:	0 mm to 203.2 mm (0”- 8.0”) for 0.33 mm (13 mil) bar code
Width of Scan Field:	87.4 mm (3.4”) @ 0 mm (0.0”); 136 mm (5.35”) @ 203.2 mm (8.0”) *Measurements in plane perpendicular to package flow*.
Scan Speed:	2000 scans/second
Scan Pattern:	5 fields of 4 parallel lines (omnidirectional)
Scan Lines:	20
Min Bar Width:	0.127 mm (5.0 mil)
Decode Capability:	Autodiscriminates all standard bar codes; for other symbologies call Metrologic
System Interfaces:	PC Keyboard Wedge, RS-232, OCIA, Light Pen, Stand Alone PC Keyboard, USB, IBM 46xx
Print Contrast:	35% minimum reflectance difference
No. Characters Read:	up to 80 data characters(Maximum number will vary based on symbology and density)
Roll, Pitch, Yaw:	360°, 60°, 60°
Beeper Operation:	7 tones or no beep
Indicators (LED):	amber = laser on, ready to scan red = good read, decoding
MECHANICAL	
Dimensions:	193 mm (7.6") H, 88 mm (3.5") D, 229 mm (9.0") W
Weight:	2.88 Kg (6.35 lbs)
Termination:	Three 10-pin modular RJ45 jacks
Cable:	Standard 2.1m (7’) straight; for other cables call Metrologic

Specifications subject to change without notice.

	MS7600 SERIES DESIGN SPECIFICATIONS
ELECTRICAL	
Input Voltage:	5.2VDC ± 0.25V
Power:	2.6 W
Operating Current:	500 mA
Standby Current:	Laser Off Power Save Mode = ≤ 350 mA
	Laser/Motor Off Power Save Mode = ≤165 mA
DC Transformers:	Class II; 5.2 V @ 1A
Laser Class:	IEC 60825-1:1993+A1:1997+A2:2001 Class 1
EMC:	FCC, ICES-003 & EN 55022 Class B
ENVIRONMENTAL	
Operating Temperature:	0°C to 40°C (32°F to 104°F)
Storage Temperature:	-40°C to 60°C (-40°F to 140°F)
Humidity:	5% to 95% relative humidity, non-condensing
Light Levels:	4842 LUX (450 foot candles)
Contaminants:	Sealed to resist airborne particulate contaminants
Ventilation:	None required

Specifications subject to change without notice.

RS232 DEMONSTRATION PROGRAM

If an RS232 scanner is not communicating with your IBM compatible PC, key in the following BASIC program to test that the communication port and scanner are working. This program is for demonstration purposes only. It is only intended to prove that cabling is correct, the com port is working, and the scanner is working. If the bar code data displays on the screen while using this program, it only demonstrates that the hardware interface and scanner are working. At this point, investigate whether the application software and the scanner configuration match. If the application does not support RS-232 scanners, a software wedge program that will take RS-232 data and place it into a keyboard buffer may be needed. This program tells the PC to ignore RTS-CTS, Data Set Ready (DSR) and Data Carrier Detect (DCD) signals. If the demonstration program works and yours still does not, jumper RTS to CTS and Data Terminal Reading (DTR) to DCD and DSR on the back of your PC.

```
10      CLS
20      ON ERROR GOTO 100
30      OPEN “COM1:9600,S,7,1,CS0,DS0,CD0,LF” AS #1
35      PRINT “SCAN A FEW BAR CODES”
40      LINE INPUT #1, BARCODE$
50      PRINT BARCODE$
60      K$ = INKEY$: IF K$ = CHR$(27) THEN GOTO 32766
70      GOTO 40
100     PRINT “ERROR NO.”; ERR; “ PRESS ANY KEY TO TERMINATE.”
110     K$ = INKEY$: IF K$ = “” THEN GOTO 110
32766   CLOSE: SYSTEM
32767   END
```

The model number on each scanner includes the scanner number and factory default communications protocol.

SCANNER	VERSION IDENTIFIER	COMMUNICATION PROTOCOL(S)
7620 7625	13	RS232, IBM 46xx, OCIA, Aux
7620 7625	37	RS232, Light Pen, Keyboard Wedge, Stand-Alone Keyboard, USB, Aux

The MS7600 with Built-in PC Keyboard Wedge Interface is designed to be used for keyboard emulation only. Many RS-232 programmable functions available in other Metrologic scanners are also available as keyboard wedge functions.

The following are the most important selectable options specific to the keyboard wedge.

Keyboard Type

- ** AT (includes IBM® PS2 models 50, 55, 60, 80)
- XT
- IBM PS2 (includes models 30, 70, 8556)

Keyboard Country Type

- ** USA
- Belgium
- French
- German
- Italian
- Japan
- Spanish
- Swiss
- United Kingdom

** Refer to pages 39-44 for complete information on the factory default settings. Refer to the MetroSelect® Programming Guide (MLPN 00-02407) or MetroSet 2's help files for information on how to change the default settings.

DEFAULT SETTINGS

Many functions of the scanner can be "programmed" - that is, enabled or disabled. The scanner is shipped from the factory programmed to a set of default conditions. The default parameter of the scanner has an asterisk (*) in the charts on the following pages. If an asterisk is not in the default column then the default setting is Off or Disabled. Every communication does not support every parameter. If the communication supports a parameter listed in the charts on the following pages, a check mark will appear.

PARAMETER	DEFAULT	OCIA	RS-232	LIGHT PEN	IBM 46XX	KBW	USB
UPC/EAN	*	✓	✓	✓	✓	✓	✓
Code 128	*	✓	✓	✓	✓	✓	✓
Code 93	*	✓	✓	✓	✓	✓	✓
Codabar	*	✓	✓	✓	✓	✓	✓
Interleaved 2 of 5 (ITF)	*	✓	✓	✓	✓	✓	✓
MOD 10 Check on ITF		✓	✓	✓	✓	✓	✓
Code 11		✓	✓	✓	✓	✓	✓
Code 39	*	✓	✓	✓	✓	✓	✓
Full ASCII Code 39		✓	✓	✓	✓	✓	✓
MOD 43 Check on Code 39		✓	✓	✓	✓	✓	✓
MSI-Plessey		✓	✓	✓	✓	✓	✓
Airline (15 digit) 2 of 5		✓	✓	✓	✓	✓	✓
Airline (13 digit) 2 of 5		✓	✓	✓	✓	✓	✓
Matrix 2 of 5		✓	✓	✓	✓	✓	✓
Telepen		✓	✓	✓	✓	✓	✓
UK Plessey		✓	✓	✓	✓	✓	✓
STD 2 of 5		✓	✓	✓	✓	✓	✓
MSI-Plessey 10/10 Check Digit		✓	✓	✓	✓	✓	✓
MSI-Plessey MOD 10 Check Digit	*	✓	✓	✓	✓	✓	✓
Paraf Support		✓	✓	✓	✓	✓	✓
ITF Symbol Lengths	Variable	✓	✓	✓	✓	✓	✓
Minimum Symbol Length	4	✓	✓	✓	✓	✓	✓
Symbol Length Lock	None	✓	✓	✓	✓	✓	✓
Bars High as Code 39	*			✓			
Spaces High as Code 39				✓			

PARAMETER	DEFAULT	OCIA	RS-232	LIGHT PEN	IBM 46XX	KBW	USB
Bars High as Scanned				✓			
Spaces High as Scanned				✓			
DTS/SIEMENS		✓					
DTS/NIXDORF	*	✓					
NCR F		✓					
NCR S		✓					
Poll Light Pen Source				✓			
Beeper Tone	Normal	✓	✓	✓	✓	✓	✓
Beep/Transmit Sequence	Before Transmit	✓	✓	✓	✓	✓	✓
Beeper Volume	Loudest	✓	✓	✓	✓	✓	✓
Communication Timeout	None	✓	✓	✓	✓	✓	✓
Razzberry Tone on Timeout		✓	✓	✓	✓	✓	✓
Three Beeps on Timeout		✓	✓	✓	✓	✓	✓
No Beeps on Timeout	*	✓	✓	✓	✓	✓	✓
Enter Power Save Mode	10 mins.	✓	✓	✓	✓	✓	✓
Blink Power Save Mode		✓	✓	✓	✓	✓	✓
Laser OFF Power Save Mode		✓	✓	✓	✓	✓	✓
Laser & Motor OFF Power Save Mode		✓	✓	✓	✓	✓	✓
Dual Action Power Save Mode #1		✓	✓	✓	✓	✓	✓
Dual Action Power Save Mode #2	*	✓	✓	✓	✓	✓	✓
Same Symbol Rescan Timeout: 200 msecs		✓	✓	✓	✓	✓	✓
Same Symbol Rescan Timeout: 500 msecs Programmable in 50 msec steps (MAX 6.35 seconds)	*	✓	✓	✓	✓	✓	✓
Same Symbol Rescan Timeout: 1250 msecs		✓	✓	✓	✓	✓	✓
Same Symbol Rescan Timeout: 2000 msecs		✓	✓	✓	✓	✓	✓
Intercharacter Delay Programmable in 1 msec steps (MAX 255 msecs)	1 msecs 10 msecs in KBW	✓	✓		✓	✓	

PARAMETER	DEFAULT	OCIA	RS-232	LIGHT PEN	IBM 46XX	KBW	USB
Number of Scan Buffers	1	✓	✓	✓	✓	✓	✓
Transmit EAN-8 Check Digit	*	✓	✓		✓	✓	✓
Transmit EAN-13 Check Digit	*	✓	✓		✓	✓	✓
Transmit UPC-A Check Digit	*	✓	✓	✓	✓	✓	✓
Transmit UPC-E Check Digit			✓	✓	✓	✓	✓
Expand UPC-E		✓	✓	✓	✓	✓	✓
Convert UPC-A to EAN-13		✓	✓		✓	✓	✓
UPC GTIN-14 Format		✓	✓		✓	✓	✓
Transmit Lead Zero on UPC-E		✓	✓	✓	✓	✓	✓
Convert EAN-8 to EAN-13		✔	✔		✔	✔	✔
Transmit UPC-A Number System	*	✓	✓	✓	✓	✓	✓
Transmit UPC-A Manufacturer ID#	*	✓	✓	✓	✓	✓	✓
Transmit UPC-A Item ID#	*	✓	✓	✓	✓	✓	✓
Transmit Codabar Start/Stop Characters		✓	✓		✓	✓	✓
CLSI Editing (Enable)		✓	✓		✓	✓	✓
Transmit Mod 43 Check Digit on Code 39		✓	✓		✓	✓	✓
Transmit Code 39 Stop/Start Characters		✓	✓		✓	✓	✓
Transmit Mod 10/ITF		✓	✓		✓	✓	✓
Transmit MSI-Plessey Check Characters		✓	✓		✓	✓	✓
Parity	Space		✓				
Baud Rate	9600		✓				
8 Data Bits			✓				
7 Data Bits	*		✓				
Transmit Sanyo ID Characters			✓			✓	✓
Nixdorf ID			✓			✓	✓
LRC Enabled			✓			✓	✓
UPC Prefix			✓			✓	✓

DEFAULT SETTINGS (CONTINUED)

PARAMETER	DEFAULT	OCIA	RS-232	LIGHT PEN	IBM 46XX	KBW	USB
UPC Suffix			✓			✓	✓
Transmit AIM ID Characters			✓			✓	✓
STX Prefix			✓			✓	✓
ETX Suffix			✓			✓	✓
Carriage Return	*		✓			✓	✓
Line Feed - disabled by default in KBW	*		✓			✓	✓
Tab Prefix			✓			✓	✓
Tab Suffix			✓			✓	✓
"DE" Disable Command			✓				✓
"FL" Laser Enable Command			✓				✓
DTR Handshaking Support			✓				
RTS/CTS Handshaking			✓				
Character RTS/CTS	*		✓				
Message RTS/CTS			✓				
XON/XOFF Handshaking			✓				
ACK/NAK			✓				
Two Digit Supplements		✓	✓	as code 39	✓	✓	✓
Five Digit Supplements		✓	✓	as code 39	✓	✓	✓
Bookland 978		✓	✓	as code 39	✓	✓	✓
Bookland 977 (2 digit) Supplemental Requirement		✓	✓	✓	✓	✓	✓
Supplements are not Required	*	✓	✓	✓	✓	✓	✓
Two Digit Redundancy	*	✓	✓	✓	✓	✓	✓
Five Digit Redundancy		✓	✓	✓	✓	✓	✓
100 msec to Find Supplement Programmable in 100 msec steps (MAX 800 msec)	*	✓	✓	✓	✓	✓	✓

DEFAULT SETTINGS (CONTINUED)

PARAMETER	DEFAULT	OCIA	RS-232	LIGHT PEN	IBM 46XX	KBW	USB
Coupon Code 128		✓	✓	as code 39	✓	✓	✓
Programmable Code Lengths	7 avail.	✓	✓	✓	✓	✓	✓
Programmable Prefix Characters	10 avail.		✓			✓	✓
Suffix Characters			✓			✓	✓
Prefixes for individual Code Types			✓			✓	✓
Editing		✓	✓	✓	✓	✓	✓
Inter Scan-Code Delay Programmable (100 µsec steps)	800 µsec					✓	✓
Function/Control Key Support						✓	✓
Minimum Element Width Programmable in 5.6 µsec steps	1 msec			✓			
Depth of Field							
Variable Depth of Field	*	✓	✓	✓	✓	✓	✓
Normal Depth of Field	*	✓	✓	✓	✓	✓	✓
Extended Depth of Field		✓	✓	✓	✓	✓	✓
Long Depth of Field	*	✓	✓	✓	✓	✓	✓
Ultra Close Depth of Field		✓	✓	✓	✓	✓	✓

Default settings for "*Aux*" interface

The secondary scanner and the MS7600 always communicate via RS232. Data is relayed to the host via various primary interfaces.

PARAMETER	DEFAULT	OCIA	RS-232	LIGHT PEN	IBM 46XX	KBW	USB
Aux Baud Rate	38400	✓	✓	✓	✓	✓	✓
Aux parity	space	✓	✓	✓	✓	✓	✓
Aux data bits	7	✓	✓	✓	✓	✓	✓
Aux stop bits	2	✓	✓	✓	✓	✓	✓
Aux character RTS	*	✓	✓	✓	✓	✓	✓
Aux message RTS		✓	✓	✓	✓	✓	✓
Aux Ack/Nak	*	✓	✓	✓	✓	✓	✓
Aux Xon/Xoff	*	✓	✓	✓	✓	✓	✓
Aux D/E commands		✓	✓	✓	✓	✓	✓
Aux M/O commands		✓	✓	✓	✓	✓	✓
Aux F/L commands		✓	✓	✓	✓	✓	✓
Aux Intercharacter Delay	1 msec	✓	✓	✓	✓	✓	✓
Aux Port Data Format	None (Disabled)	✓	✓	✓	✓	✓	✓

Scanner Pinout Connections

The MS7600 scanner interfaces terminate to 10-pin modular jacks located on the back of the unit. The serial # label indicates the model number of the scanner.

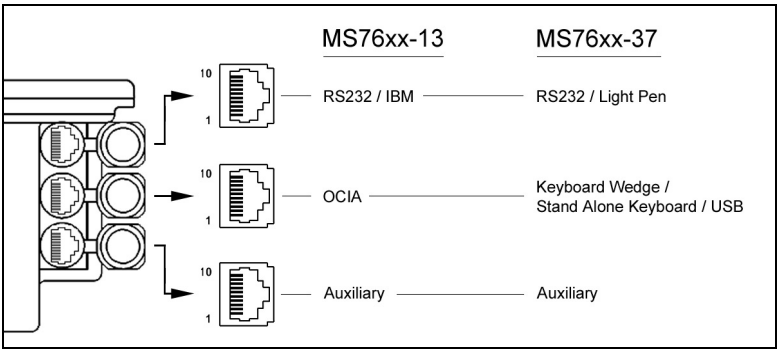


Figure 31: *Scanner Interface Ports*

MS762x-13 OCIA	
Pin	**Function**
1	Ground
2	NC
3	NC
4	RDATA
5	RDATA Return
6	Clock in
7	Clock out
8	Clock in Return/ Clock out Rtrn
9	+5VDC
10	Shield Ground

MS762x-13 IBM 46xx	
Pin	**Function**
1	Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	RTS Output
5	CTS Input
6	DTR
7	IBM B- (D-)
8	IBM A+ (D+)
9	+5V IN
10	NC

MS762x-13/-37 Auxilary Port RS232 IN Only	
Pin	**Function**
1	Ground
2	RS-232 Receive Input
3	RS-232 Transmit Output
4	RTS In
5	CTS Out
6-10	NC

Continued on next page

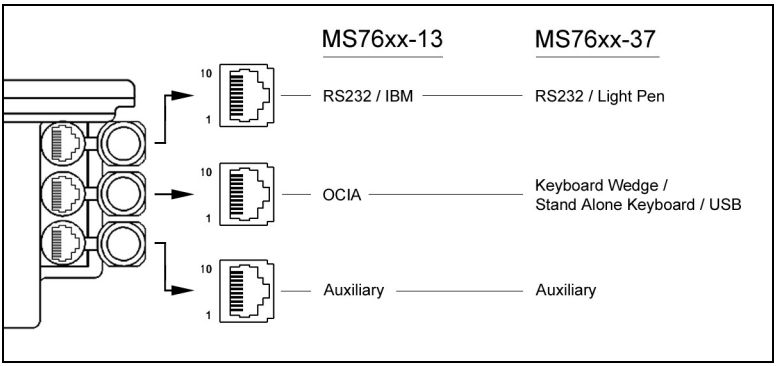


Figure 32: *Scanner Interface Ports*

MS762x-37
Keyboard Wedge,
Stand-Keyboard or USB

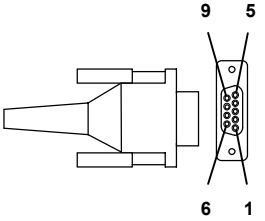
Pin	Function
1	Ground
2	USB D-
3	USB D+
4	PC Data
5	PC Clock
6	KB Clock
7	PC +5V, V-USB
8	KB Data
9	+5VDC
10	Shield Ground

MS762x-37
RS-232 or Light Pen

Pin	Function
1	Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	RTS Output
5	CTS Input
6	DTR Input/LTPN Source
7	N/C
8	LTPN Data
9	+5VDC
10	Shield Ground

Cable Connector Configurations (Host End)

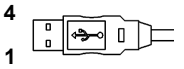
PowerLink Cable MLPN 54-54xxx*	
Pin	**Function**
1	Shield Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	DTR Input
5	Power/Signal Ground
6	Reserved
7	CTS Input
8	RTS Output
9	+5VDC



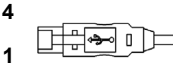
9-Pin D-Type Conn.

xxx* specifies connection to the host

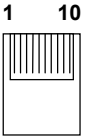
USB PowerLink Cable (MLPN 54-54165, Type A)	
Pin	**Function**
1	N/C
2	D-
3	D+
4	Ground



USB Type A (Top)
Locking Type A (Bottom)

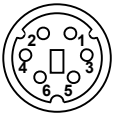


PowerLink, RS232 LSO/AUX Cable MLPN 54-54667	
Pin	**Function**
1	Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	RTS Output
5	CTS Input
6-10	N/C



10-pin Modular Plug

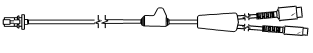
Stand Alone Keyboard Cable MLPN 54-54020	
Pin	**Function**
1	PC Data
2	NC
3	Power Ground
4	+5VDC PC Power to KB
5	PC Clock
6	NC



6-Pin Male Mini-DIN Conn.

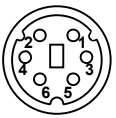
Cable Connector Configuration

The PowerLink cable is terminated with a 5-pin DIN female connector on one end, and a 6-pin mini DIN male on the other.



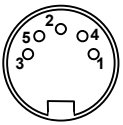
PowerLink Cable

5-Pin DIN, Female



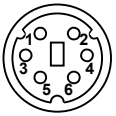
6-Pin DIN, Male

Metrologic will supply an adapter cable with a 5-pin DIN male connector on one end and a 6-pin mini DIN female connector on the other.



5-Pin Din, Male

Adapter Cable



6-pin Mini Din, Female

According to the termination required, connect the appropriate end of the adapter cable to the PowerLink cable, leaving the necessary termination exposed for connecting to the keyboard and the keyboard port on the PC. The pin assignments are as follows:

PowerLink Cable	
5-pin Female DIN	
Pin	**Function**
1	Keyboard Clock
2	Keyboard Data
3	No Connect
4	Power Ground
5	+5 Volts DC
6-pin Male Mini-DIN	
Pin	**Function**
1	Keyboard Data
2	No Connect
3	Power Ground
4	+5 Volts DC
5	PC Clock
6	No Connect

Adapter Cable	
5-pin Male DIN	
Pin	**Function**
1	PC Clock
2	PC Data
3	No Connect
4	Power Ground
5	+5 Volts DC
6-pin Female Mini-DIN	
Pin	**Function**
1	Keyboard Data
2	No Connect
3	Power Ground
4	+5 Volts DC
5	Keyboard Clock
6	No Connect

LIMITED WARRANTY

The MS7600 Series scanners are manufactured by Metrologic at its Blackwood, New Jersey, U.S.A. facility. The MS7600 Series scanners have a three (3) year limited warranty from the date of manufacture. Metrologic warrants and represents that all MS7600 Series scanners are free of all defects in material, workmanship and design, and have been produced and labeled in compliance with all applicable U.S. Federal, state and local laws, regulations and ordinances pertaining to their production and labeling.

This warranty is limited to repair, replacement of Product or refund of Product price at the sole discretion of Metrologic. Faulty equipment must be returned to the Metrologic facility in Blackwood, New Jersey, U.S.A. or Puchheim, Germany. To do this, contact Metrologic's Customer Service/Repair Department to obtain a Returned Material Authorization (RMA) number.

In the event that it is determined the equipment failure is covered under this warranty, Metrologic shall, at its sole option, repair the Product or replace the Product with a functionally equivalent unit and return such repaired or replaced Product without charge for service or return freight, whether distributor, dealer/reseller, or retail consumer, or refund an amount equal to the original purchase price.

This limited warranty does not extend to any Product which, in the sole judgement of Metrologic, has been subjected to abuse, misuse, neglect, improper installation, or accident, nor any damage due to use or misuse produced from integration of the Product into any mechanical, electrical or computer system. The warranty is void if the case of Product is opened by anyone other than Metrologic's repair department or authorized repair centers.

THIS LIMITED WARRANTY, EXCEPT AS TO TITLE, IS IN LIEU OF ALL OTHER WARRANTIES OR GUARANTEES, EITHER EXPRESS OR IMPLIED, AND SPECIFICALLY EXCLUDES, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE UNDER THE UNIFORM COMMERCIAL CODE, OR ARISING OUT OF CUSTOM OR CONDUCT. THE RIGHTS AND REMEDIES PROVIDED HEREIN ARE EXCLUSIVE AND IN LIEU OF ANY OTHER RIGHTS OR REMEDIES. IN NO EVENT SHALL METROLOGIC BE LIABLE FOR ANY INDIRECT OR CONSEQUENTIAL DAMAGES, INCIDENTAL DAMAGES, DAMAGES TO PERSON OR PROPERTY, OR EFFECT ON BUSINESS OR PROPERTY, OR OTHER DAMAGES OR EXPENSES DUE DIRECTLY OR INDIRECTLY TO THE PRODUCT, EXCEPT AS STATED IN THIS WARRANTY. IN NO EVENT SHALL ANY LIABILITY OF METROLOGIC EXCEED THE ACTUAL AMOUNT PAID TO METROLOGIC FOR THE PRODUCT. METROLOGIC RESERVES THE RIGHT TO MAKE ANY CHANGES TO THE PRODUCT DESCRIBED HEREIN.

Corporate Headquarters

Metrologic Instruments, Inc.
90 Coles Road
Blackwood, NJ 08012-4683

Customer Service: 1-800-ID-METRO
Tel: 856-228-8100
Fax: 856-228-6673
Email: info@metrologic.com
Website: www.metrologic.com

Germany

Metrologic Instruments GmbH
Dornierstrasse 2
82178 Puchheim b.
Munich, Germany

Tel: 49-89-89019-0
Fax: 49-89-89019-200
Email: info@europe.metrologic.com

NOTICES

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Notice
This Class B digital apparatus complies with Canadian ICES-003.

Avertissement
Cet appareil numérique de la class B est conforme à la norme NMB-003.

⚠Caution
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure. Under no circumstances should the customer attempt to service the laser scanner. Never attempt to look at the laser beam, even if the scanner appears to be nonfunctional. Never open the scanner in an attempt to look into the device. Doing so could result in hazardous laser light exposure. The use of optical instruments with the laser equipment will increase eye hazard.

⚠Atención
La modificación de los procedimientos, o la utilización de controles o ajustes distintos de los especificados aquí, pueden provocar una luz de láser peligrosa. Bajo ninguna circunstancia el usuario deberá realizar el mantenimiento del láser del escáner. Ni intentar mirar al haz del láser incluso cuando este no esté operativo. Tampoco deberá abrir el escáner para examinar el aparato. El hacerlo puede conllevar una exposición peligrosa a la luz de láser. El uso de instrumentos ópticos con el equipo láser puede incrementar el riesgo para la vista.

⚠Attention
L'emploi de commandes, réglages ou procédés autres que ceux décrits ici peut entraîner de graves irradiations. Le client ne doit en aucun cas essayer d'entretenir lui-même le scanner ou le laser. Ne regardez jamais directement le rayon laser, même si vous croyez que le scanner est inactif. N'ouvrez jamais le scanner pour regarder dans l'appareil. Ce faisant, vous vous exposez à une rayonnement laser qú êst hazardous. L'emploi d'appareils optiques avec cet équipement laser augmente le risque d'endommagement de la vision.

⚠Achtung
Die Verwendung anderer als der hier beschriebenen Steuerungen, Einstellungen oder Verfahren kann eine gefährliche Laserstrahlung hervorrufen. Der Kunde sollte unter keinen Umständen versuchen, den Laser-Scanner selbst zu warten. Sehen Sie niemals in den Laserstrahl, selbst wenn Sie glauben, daß der Scanner nicht aktiv ist. Öffnen Sie niemals den Scanner, um in das Gerät hineinzusehen. Wenn Sie dies tun, können Sie sich einer gefährlichen Laserstrahlung aussetzen. Der Einsatz optischer Geräte mit dieser Laserausrüstung erhöht das Risiko einer Sehschädigung.

⚠Attenzione
L'utilizzo di sistemi di controllo, di regolazioni o di procedimenti diversi da quelli descritti nel presente Manuale può provocare delle esposizioni a raggi laser rischiose. Il cliente non deve assolutamente tentare di riparare egli stesso lo scanner laser. Non guardate mai il raggio laser, anche se credete che lo scanner non sia attivo. Non aprite mai lo scanner per guardare dentro l'apparecchio. Facendolo potete esporVi ad una esposizione laser rischiosa. L'uso di apparecchi ottici, equipaggiati con raggi laser, aumenta il rischio di danni alla vista.

PATENTS

For patent information, please refer to www.honeywellaidc.com/patents.

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